

AMATEUR RADIO

FEBRUARY

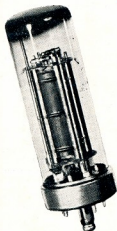
1950

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

Now Arrived . . .

A New Quick Heating Valve
for Mobile Services

PHILIPS QQCO4/15



The new Philips Double Tetrode type QQCO4/15 combines compactness, stability, and maximum output at 186 Mc/s.

ECONOMY OF OPERATION makes this valve ideal for use in mobile equipment. The directly heated filament requires only 6.3 volts at 0.68 amperes.

An important departure from the conventional type of double tetrode is that the anodes are brought out at the base and not at the top of the bulb. This feature facilitates wiring and allows a better orientation of components.

TYPICAL RATINGS FOR CONTINUOUS SERVICE

Frequency	186 Mc/s.	Screen voltage	200 V.
Anode voltage	400 V.	Screen current	8 mA.
Anode current	2 x 30 mA.	Bias	—80 V.
Watts output 19.5 W. (Two systems in p.p.)			

Available Next Month—the QQEO6/40

Philips also has pleasure in announcing the development of a new double tetrode of advanced scientific construction. The QQEO6/40 has an output of 80 watts (approx.) at 300 Mc/s. This valve can also be operated with an output of 30 watts (approx.) up to 375 Mc/s.

PHILIPS ELECTRICAL INDUSTRIES OF AUSTRALIA PTY. LTD.

SYDNEY

MELBOURNE

BRISBANE

ADELAIDE

PERTH



FOR THE EXPERIMENTER & RADIO ENTHUSIAST

Registered at G.P.O., Melbourne, for transmission by post as a periodical.

9^D.

"HAM" RADIO SUPPLIERS

5A Melville Street, Hawthorn, Victoria

PHONE: HAWTHORN 4465

PHONE: HAWTHORN 4465

BARGAINS — BARGAINS — BARGAINS

BC348, Single Ended Valves. Complete with Power Supply, Crystal Filter, 200 Kc. to 18 Mc. Excellent condition £35.

Eddystone "640" Receiver, complete with Speaker, Power Supply and Instruction Book. One only £55.

Brand new dual Audio Units. Containing two 12A6s in grey crackle finished containers. These units offer many purposes. Pre-Amplifiers, Inter-Communication Units or for wrecking. Units are mounted on rubber stands. 35/-.

English Transceivers, frequency unknown. Nine Valves including one EF50, one VT501, one EL32, two EF39, one EK32, one EBC33, two EF36. Chock full of useful parts, relays, genemotor, etc. £6 each.

American Transceivers, Hi-Frequency I.F.F. Tube line-up: three 7193s, seven 6SH7s, three 6H6s, four Relays, less Genemotor £3.

SPECIAL

English I.F.F. Units. Tube line-up: two VR135 (high freq. triodes), two VR78 (diodes), four VR65A, Eddystone Butterfly Condenser, 1 uF, 1,000 v.w. Block Condenser, Genemotor 11-12 v. input at 3.3 Amp., output 480 v. 40 Ma. Good assorted quantity of Resistors and Condensers, ideal for wrecking, condition as new £2 each.

High Frequency Receiver, Australian AR301, uses three 954s, one 995, Six 6AC7 I.F. Stages at 30 Mc. Easily converted to 144 Mc. £10 each.

Prop. Motors, suitable for beams, 28 volts input £5

American type SCR52233, band coverage 2 to 9 Mc., plug-in coils, Modulator incorporated. Two 6N7, one VR150, one 1625, two 815s. Easily modified for other bands. Price £12/10/-.

American TA12D four-bands; 12SK7 v.f.o. each band, 807 doubler, two 807s in final, less Modulator. £17/10/-.

American type BC375E Transmitter, phone and c.w. Four 211s, one VT25A, including three meters. Modulator chock full of useful parts. Less coil boxes £9/10/-.

AT5 Transmitters, no valves or meter, slightly damaged and suitable for wrecking, plenty of useful parts £3.

Cathode Ray Indicators, American type CPR55ABB. Valve line up: one 5BP1, four 6AC7s, three 6H6s; in metal case, easily converted to C.R.O. Price £8/10/-.

American R1/ARR1, band coverage 234-258 Mc. Contains three 954 valves, resistors, etc. Slug tuned. In black crackle case. Price £3/10/-.

American Radio Beacon Receivers, contains one 12C8, one 12SQ7, low current milliamp. relay. In small metal case. Price £2.

Interphone Amplifiers, contains 6F8 valve, two transformers, resistors, condensers, etc. £1/10/-.

American Simpson 2 inch 0-150 Ma. Meters, new, £1/2/6.

Weston twin scale, 0-40, 0-120 Ma., 3 terminals, £1/2/6.

English Crystal Diodes 10/6 each.

SPECIAL

12 foot lengths of 1/2 inch Co-ax Cable, 72 ohms, with connector both ends 4/6.

American Radar Receiver 400 Mc. Tube line-up: two 955s, six 6AC7s, one 6H6, one 6J5. Slug tuned I.f. channel. Contained in black crackle cabinet. Price £7.

VALVES, Tested, Out of Disposals Gear

10/- each—

7/6 each—

2C26	954	2X2	12C8
6A6	955	879	12SK7
6AC7	956	6G6	12SJ7
6N7	12A6	12SG7	6B4
6SL7	1626	12AH7	6K7
6X5	1629	12J5	AV11
9003	HY615	6AK5	17/6 each.

6H6 and 6SH7 Valves, Bargain Price ... 5/- each.

WANTED TO BUY—TYPE 3 MK. II. AND TYPE A MK. III. TRANSCEIVERS

"HAM" RADIO SUPPLIERS

(KEN MILLBOURN, PROP.)

5A Melville Street, Hawthorn, Victoria

(East Kew Tram Passes Corner, opposite Vogue Theatre)

(Phone: Hawthorn 4465)

Please make Money Orders and Postal Notes payable at North Hawthorn Post Office.

AMATEUR RADIO

Published by the Wireless Institute of Australia,
Law Court Chambers, 191 Queen Street,
Melbourne, C.1

EDITOR:

T. D. HOGAN, VK3HX,
Telephone: UM 1732.

MANAGING EDITOR:

J. G. MARSLAND, VK3NY.

TECHNICAL EDITOR:

J. C. DUNCAN, VK3VZ.

ASSISTANT TECHNICAL EDITOR:

A. K. HEAD, VK3AKZ.

COMPILATION:

R. W. HIGGINBOTHAM, VK3RN.

LIAISON:

I. K. SEWELL, VK3IK.

CIRCULATION:

S. I. ZEUNERT, VK3SZ.

ADVERTISING REPRESENTATIVE FOR VICTORIA:

W. J. LEWIS,
Room 302, 17 Bond St., Melbourne, C.1.
Telephone: MU 5154.

ADVERTISING REPRESENTATIVE FOR N.S.W. AND QUEENSLAND:

L. W. CRANCH,
Room 302, 17 Bond St., Sydney.
Telephone: BU 3879.

PRINTERS:

"RICHMOND CHRONICLE,"
Shakespeare St., Richmond, E.1.
Telephone: JB 2419.

MSS. and Magazine Correspondence should be forwarded to the Editor, "Amateur Radio," Law Court Chambers, 191 Queen St., Melbourne, C.1, on or before the 8th of each month.

Subscription rate in Australia is 9/- per annum, in advance (post paid) and A10/6 in all other countries.

Wireless Institute of Australia
(Victorian Division) Rooms' Telephone is FJ 6997.

EDITORIAL**T.V.I.**

With television just around the corner, workers in our chosen field will experience a decided tightening of the conditions under which we will operate without causing interference to the new art. At this stage of the game, most of us have had perforce to study harmonic suppression in some degree to keep the household b.c.l. set trouble free.

But with the possibility of t.v.i. on top of this the onus will be very much on the Amateur to put only a non-interfering signal on the air.

He will lose the oft used excuse of the antiquated b.c.l. set, for if television in Australia takes up at the present state of development in Britain, local manufacturers will be turning out reasonably high quality gear from the start, capable of giving optimum results only with re-

ceiving conditions at their best. The situation seems to call for extensive research by the t.v. manufacturers, and those specially appointed technical committees who have for some years been studying and eliminating electrical interference.

The Government would be wise to co-opt these committees at this early stage and publish findings for the information and use of all potential creators of QRM including the licenced Amateur.

Only by such co-operation will we retain sufficient "arm room" to use the bands for our experimental purposes as we are entitled to, without becoming involved in the troublesome task of finding our own way out of difficulties which could, with reasonable knowledge and precaution, be avoided.

—P. E.

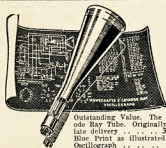
The Contents . . .

De Luxe Vacuum-Tube Voltmeter, Part II.	3	Fifty Megacycles and Above	10
19th Federal Convention Action on Motions Carried	9	Abstracts from Overseas Magazines	12
Ionospheric Predictions for the Amateur Bands	9	1950 R.E.F. Contest	12
		Federal, QSL, and Divisional Notes	13
		Correspondence	20

Homecrafts

PTY. LTD.

GREATEST BARGAINS LARGEST STOCK



BUILD YOUR OWN DE LUXE OSCILLO- GRAPH

Outstanding Value. The famous 5BP1 Cathode Ray Tube. Originally cost £15. Immediate delivery 37/6 plus Sales Tax. Blue Print as illustrated to build De Luxe Oscillograph 1/6

Sockets for 5BP1 Tube, 9/6 each.

Cathode Ray Oscillograph Cabinet. Black Crackle Finish Steel Drilled Cabinets and Chassis complete with brackets. As illustrated £4/7/6.

Power Transformer for 5 in. Cathode Ray Oscillograph. Price 99/-.



STEEL INSTRUMENT CABINETS

Finished in grey crackle finish as illustrated. Small 7-in. high, 11-in. long, 5-5/8-in. deep, 30/- Large 10-5/8-in. high, 22 in. long, 11-in. deep, 60/-



Capitol Indicator Plates. Metal plates, large type. As illustrated, 1/6 each Small types, as illustrated, 6d. each.



CHASSIS HOLE CUTTERS

Adjustable Chassis Hole Cutters. Cuts holes from 1 inch to 3 1/2 inches. Price, 16/7.



RADIOGRAM CABINETS

Beautiful walnut piano finish Radiogram Cabinet, as illustrated; standard model, £13/19/6. Model with deep well for record changer, £14/7/- Also available in the latest blonde finish, this model for a standard motor, £16/9/6. Model with deep well for record changer, £16/11/-.

Country and Interstate clients add 15/- packing charge.



JUMBO TYPE VALVE SOCKETS

Suitable for 211E, etc. As illustrated, 20/- ea.



VIBRATORS

12 Volt Non-Synchronous Vibrators, standard type. Usually 30/- cut to only 9/11.



ACOS INSERTS

Acos Crystal Microphone Inserts for 1104 type microphone. Price as illustrated, 28/2.



WHILE THEY LAST

English Meters made by Metropolitan Vickers, 0-1 milliamperes, moving coil meters, 2 in. scale. Brand new, in original carton, only 29/6.



BATTERY CHARGER KIT

Homecrafts' 6 volt 4 amp. Battery Charger Kit. Kit includes 6 volt 4 amp. English selenium rectifier, transformer, black crackle finish metal case, 2 terminals, and hook-up wire. Complete kit as illustrated, only £4/10/- 12 volt 2 amp. kit 5/- extra.



KAR SET

Radio and Hobbies' Car Radio Kit as described in May issue of Radio and Hobbies. Homecrafts offer this kit complete to the last nut and bolt. Price as illustrated, 18 Gns. including Sales Tax.



ELECTRIC GRAMMO MOTOR

Electric Gramo Motor Bargain. Brand new synchronous electric gramophone motor. Plays 10 and 12 in. records. Constant speed, 78 r.p.m., only 59/6.



KNOBS

Bargain Radio Knobs. Large sized radio knobs, 4/6 dozen.



TORCH BARGAIN

Five cell focussing Torches. All chrome finish. Case with globe only 19/11. Batteries 3/9 extra.



MIDGET TUNING CONDENSERS

Bargain Midget Tuning Condensers, two gang with trimmers. Reduced from 29/- to 19/11. Three gang with trimmers, reduced from 24/- to 12/11



TEST PROBES

Available in pairs, red and with chromium black. Insulated brace probes, per pair, 2/9 as illustrated.



Brass Extension Shafts. 1 to 1 inch. As illustrated, 10d. each.

DISPOSAL VALVE BARGAINS - AVAILABLE FOR IMMEDIATE DELIVERY

Type EF50, High Gain RF Pentode. 6.3v. 9-pin lock-in socket. 15/-
Type EA50 6.3v. VHF Diode, suitable for Vacuum Tube Voltmeter Test Probes 16/-
Type 954 6.3v. Det. Amp. Pentode Acorn Base. As illustrated 16/-
Type 955 6.3v. Det. Amp. Osc. Acorn Base. As illustrated 16/-
Type 746 Twin Diode 16/-
Type 807 Beam Power Amplifier 16/6

Type 42 SPT 4 volt Coscor screened pentode 14/-
Type 5BP1 6.3v. Cathode Ray; 5 in. Screen, Elect. Deflection 37/6 plus Sales Tax
Type 707 Triple Grid 6.3v. 8-pin lock-in. Price 16/-
Type 2X3 High Vacuum Rectifier 4-pin 16/6
Type 834 7.5v. 4-pin Power Amplifier. Price 30/3
Type 6B17 Sharp Cut Off RF Pentode. Price 16/-
Type 211 10v. Jumbo, 4-pin Power Triode 28/3
Type 808B 10v. Triode 60 Watt 29/-

ALL PRICES INCLUDE EXCISE.

290 LONSDALE STREET, MELBOURNE

Central 4311

A De Luxe Vacuum-Tube Voltmeter

PART II.

By J. DUNCAN†, VK3VZ, and A. P. THORNTON‡, VK3IY

After reading the theoretical development of the v.t.v.m. in the last issue, we now turn to the practical problems associated with the construction of an instrument of this type, suitable for the parts readily available in Australia.

Let us study the circuit diagram of Fig. 1. In dotted lines at the upper left is the r.f. probe, the entire EA50 rectifier of the instrument, together with its r.f. input capacitor, C1, a.c. load resistor, R1, and filter capacitor, C2. For low-frequency operation, C1 is dropped out and C3 picked up through suitable contacts actuated when the probe is pushed into the instrument. Rectifier-developed contact-potential is balanced out by the second EA50 and switch S-2C. The desired balance potential is selected from the resistor stick consisting of R2, R3, R4, and R5. Since this is required only in a.c. operation, the function switch head, S-1A, either includes or omits it from the grid circuit of the lower balancing section of the 6SN7GT cathode-follower.

Switch S-1F switches the "high" input jack about for desired functions, while the 30 megohm resistor pairs, R6 and R7, provide the 2.5 voltage multiplier for the six d.c. ranges of 7.5 through 3,000 volts maximum at the 3,000 volt panel jack. Switches S-1E and S-1F switch the a.c. rectifier output and the d.c. input to the top of the range stick, R8 through R13 with the desired range selected by the range switches S2.

Since it is not desirable to have the primary cathode follower always to have its grid connected to S-2B, switch S-1B is arranged to disconnect it therefrom for resistance measurements, or to ground it for current measurements. The range head switch S-2D selects suitable resistors, R14 through R19, for the six resistance ranges and connects the dry battery B.

R20 and R21 are the two cathode follower load resistors, to the "high" ends of which the grids of the meter-actuating 6SN7GT are connected permanently. The function switches, S-1C and S-1D, shift the meter itself to select the selected function, and also to serve to reverse polarity for differing d.c. input polarities. The wire wound adjustable resistor R22 is used to set the d.c. voltage ranges on the meter scale, establishing full scale reading for the 3 volt input (or 2.5 volt if chosen), which serves to place all d.c. ranges in proper step.

Switch S-2A selects the different a.c. range-set resistors, R23 through R26, which are required for the several a.c. voltage ranges. Switch head S-2E, in conjunction with resistors R27 through R32 establish the six direct current ranges. R33 is the front panel ohms adjust control, used to set the meter reading to full scale before starting resistance measurements. One setting of the knob serves for all six resistance ranges. The remaining parts have been sufficiently discussed in Part I., with particular reference to Fig. 6 as to necessitate no further definition.

There is one other point. This instrument is literally self-testing. By means of its voltage functions, every internal operating voltage may be measured by the v.t.v.m. itself. Likewise the values of the voltage divider-stick resistors, contact potential balance and current-range resistors may be measured by the vacuum-tube voltmeter. In practical fact, only the resistance-range resistors may not be measured without another separate instrument.

The first major difficulty is the range resistors, which must be of $\pm 1\%$ tolerance. Resistances of this tolerance are

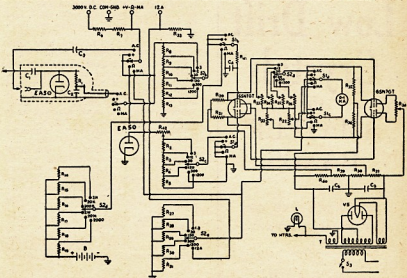


Fig. 1.—Circuit diagram of the Vacuum Tube Voltmeter. With the new setting of R22 to give 2.5 volts full scale, the voltage ranges would become 2.5, 10, 25, 100, 250, and 1,000 volts as mentioned in the text. The 9000s are changed to EA50s, and the altered resistance values are given in the parts list.

- C1—0.0005 uF. mica.
- C2—0.002 uF. mica.
- C3—Three 0.1 uF. 600v. tubulars in series.
- C4—0.005 uF. mica.
- C5, C6—8 uF. electrolytics.
- R1—16 megohms 5% tolerance. (Must be small, in r.f. probe).
- R2—10 meg. $\frac{1}{2}$ watt.
- R3—2 meg. $\frac{1}{2}$ watt.
- R4—1.75 meg. $\frac{1}{2}$ watt.
- R5—0.1 meg. $\frac{1}{2}$ watt.
- *R6 + R7—60 meg. for x 2.5 multiplier (10 x 6); or 40 meg. for x 2 multiplier (10 x 4).
- *R8—30 meg. (10 + 10 + 10)
- *R9—6 meg (3 + 1).
- *R10—3 meg.
- *R11—0.6 meg.
- *R12—0.3 meg.
- *R13—0.1 meg.
- *R14—10 ohms.
- *R15—100 ohms.
- *R16—1,000 ohms.

- *R17—10,000 ohms.
- *R18—100,000 ohms.
- *R19—10 meg.
- R20, R21, R41—5 meg. 5% tolerance.
- R22, R23, R24, R25, R26, R34—2,500 ohm w.w. pots.
- R27, R28, R29, R30, R31—0.1 Ma. meter shunts.
- R32—Set experimentally to give 10 amp. range.
- R33—10,000 ohms w.w. pot.
- R35, R36, R37, R40—40,000 ohms 5% tolerance, 2 watts.
- R38, R39—4,000 5% tolerance, 1 watt.
- S1 a, b, c, d, e, f—Three banks each five position two-pole.
- S2—Five banks each five position one pole.
- T—250/250 volts at 40 Ma. with two 6.3 v. fl. windings or one 5v. and one 6.3v. winding.
- V5—6X5GT.

* Denotes $\pm 1\%$ tolerance.

† Technical Editor, 23 Parkside Avenue, Balwyn, Victoria.

‡ 23a Maude Street, Nth. Balwyn, Vic.

available from I.R.C. in Sydney, or through the Melbourne distributors, "Australian Engineering Equipment." It is not possible to obtain them all from stock in Melbourne, but they can be supplied to order after a short wait. The original values were not very helpful, the resistance values of the voltage divider "stick," being 37.5, 7.5, 3.75, 0.75, 0.375, and 0.125 megohms. These values are obviously difficult to make up, and it was decided to alter the value of the range "stick" to obtain more even values, so the overall resistance of the "stick" was reduced slightly from 50 megohms to 40 megohms, which brings the individual resistances to 30, 6, 3, 0.6, 0.3, and 0.1 megohms, all values which are easier to obtain.

The highest value obtainable in the 1% tolerance at the time of building the instrument was 10 megohms, so the value of 30 megohms is made up of three 10 megohm 1 watt resistances in series. The diode load resistor has to be altered to keep the right proportion, and is changed to 16 megohms, made up of a 10, 5, and 1 meg. bank of resistances in series.

It was further decided that the additional terminal which is used to multiply the scale readings should be changed to give a multiplication of 2.

As it was desirable to use a 0-1 milliammeter, and it was simpler to retain the existing 0-1 scale, the fundamental ranges were altered slightly. No alteration to the circuit values or the divider "stick" are entailed, the d.c. resistance range potentiometer R22 being adjusted so that full scale deflection is 2.5 volts instead of 3 volts as originally. The voltage ranges then become 0-2.5v., 10v., 25v., 100v., 250v., and 1,000 volts, and by using the extra terminal we have additional ranges of 0-5v., 50v., 200v., 500v., and 2,000 volts. Note how these ranges fit in between the main ranges.

In practice, the existing scale of the meter is given some additional figures against the 0 to 1 scale and is marked 0-25 under the existing calibrations. It may be possible to obtain a 0-1 milliammeter with this scale marking as it is the standard marking for a multi-meter scale. An additional calibrated range is required for the 0.25v. a.c. range only, as this range is not quite linear. If approximate readings can be tolerated, the main range can be used, but for accurate work it will be necessary to hand calibrate against another meter, any a.c. meter with a low voltage scale would be suitable.

The ohms range is easily obtained, either by calibrating against an ohm meter, or alternatively, by using the 0-1 scale, and by calculation, enough points can be obtained to plot in the

complete ohms scale. A list of calibration points in terms of the 0-1 scale is appended.

Another advantage in using the existing 0-1 Ma. scale is the fact that standard shunts can be used for the milliamperage ranges.

If it is desired to utilize the original idea of hand calibrating all scales and using the 0-3v. as the fundamental, it is advisable to retain the original scale multiplier, and multiply the scales by 2½, in which case the terminal resistance R6 + R7 would be 60 megohms (six 10 meg. in series).

After all it is merely a matter of choice which set of scale ranges are used, personally the writer preferred the 0-2.5 volt fundamental range in preference to the 0.3 volt, because it was felt that scale calibration could be simplified. The two main advantages of using the 3 volt range, are firstly, a 3 volt battery can be used to set the full scale adjustment for the d.c. ranges, and secondly the maximum voltage which can be measured by the instrument is increased, as with the aid of multiplier, voltages can be read to 3,000, as against 2,000 volts with the other scale. The switches in Fig. 1 are marked for the fundamental 3 volt range, it will be observed.

The next main problem is the choice of switches, which need to be ceramic, due to the voltages handled, and also to eliminate leakages between switch contacts; the second point being very important when we consider the high value of resistances between some of the resistance "stick" contacts, and also the fact that the high resistance range is capable of measuring well over 200 megohms.

The function switch consists of three banks of 5 x 2, which is a standard switch, and is readily available. One bank S-1D and S-1C could be an ordinary bakelite if desired, to reduce the cost. The voltage selector switch has

Low Drift Crystals FOR AMATEUR BANDS

ACCURACY 0.02% OF
STATED FREQUENCY

3.5 Mc. and 7 Mc.

Unmounted £2 0 0

Mounted £2 10 0

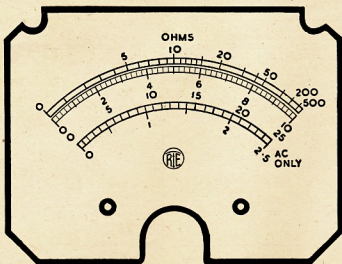
12.5 and 14 Mc. Fundamental
Crystals, "Low Drift,"
Mounted only, £5.

Spot Frequency Crystals
Prices on Application.

Regrinds £1 0 0

THESE PRICES DO NOT
INCLUDE SALES TAX.

MAXWELL HOWDEN
15 CLAREMONT CRES.,
CANTERBURY, E.7,
VICTORIA



Full Scale Dial Calibration for University 0-1 Ma. standard square type 4" Meter.

six positions and is therefore a little more difficult to obtain. One possibility is to cut the voltage ranges to five and use a standard switch, but this causes a serious gap in the ohms ranges and is not recommended. The best alternative is to use five banks of twelve contacts, and only use those required. Quite a few six position switches are about however, and no difficulty should be encountered on that score. Two banks S-2E and S-2A could again be in bakelite.

The only other main alteration in the circuit was the adoption of EA50 diodes in place of the 9006s, this was done because of their lower inter-electrode capacity, and also their smaller physical size, important when designing the r.f. probe. The changing of these valves brought about a change in the values of the diode balancing resistors, and it is advisable to place them in an accessible position so that they can be altered if necessary. The method is simple. Set the v.t.v.m. to a.c. and switch to the 1,000 volt range, adjust the zero set to give zero on the meter scale, which will coincide with the d.c. zero, and then move the range switch progressively towards the 2.5 volt range, checking the position of the meter needle to see that it coincides with the zero point at each setting. If it varies on any range the resistance below the tapping point will need alteration. If the needle is above the zero point the resistance will need to be increased, and visa versa. On the 2.5 volt range the zero adjustment is done by the potentiometer R42, which should give a reasonable variation above and below the zero point. If it does not do this, change the value of R2. Naturally these adjustments must be made with the r.f. probe in circuit as we are balancing one diode current against the other.

One other alteration was found necessary to the circuit, and that was the use of a separate filament winding for the cathode follower. This was due to the fact that the cathode resistance is 5 megohms, which is virtually between the cathode and filament of the 6SN7GT and it was necessary to supply this valve from the spare 5 volt filament winding on the transformer, which gave quite adequate voltage, and also enabled the winding to be left floating above ground, thereby removing the chances of cathode to heater leakage, with some 6SN7GT.

The remainder of the circuit is quite straight forward, and needs little comment, the only point to remember being that we are dealing with two balanced circuits in the two 6SN7s and therefore any lack of balance in the two opposite halves of the circuit will result in a position arising where it is impossible to zero set the meter. To overcome this see that the two 40,000 cathode resistors in the cathode circuits of the 6SN7 meter tube are of the same value, it is more essential for them to be the same value than exactly 40,000, so select a pair matched on an ohm meter.

The same remarks apply to the balanced voltage divider across the power supply, and in checking with a 1,000 ohm per volt meter on completion, the

voltage between the ends of the two 40,000 ohm resistances should be 175 volts, and across the outer ends of the 4,000 divider resistances 12 volts, and measured to ground, $-87\frac{1}{2}$ volts, $+87\frac{1}{2}$ volts, -6 volts, and $+6$ volts, respectively. It is not essential to have these

exact voltages, as long as the two halves of the divider balance.

If all resistances and voltages are balanced, the meter should read zero with the "zero set" control at about mid scale.

ADJUSTMENT

D.C. Ranges.—Turn the function switch to d.c. plus and the range selector to the 2.5 volt range, adjust the "zero set" control for zero on the scale. Connect a fresh 1.5 volt battery to the leads and adjust potentiometer R22 for correct scale reading. All d.c. ranges will now be correct.

Turn the function switch to d.c. minus, reverse the battery, and it should again read 1.5 volts, if not the 6SN7s are not operating on the straight portion of the curve, and the cathode resistances will need checking, however, no trouble was encountered on this score in both models built up.

A.C. Ranges.—Switch the function switch to a.c. and the range selector to 2.5 volts. A suitable voltage of 2.5 volts is taken from the filament winding of a transformer through a 600 ohm potentiometer, to give a source of variable voltage, and an a.c. meter connected across the output. The potentiometer R23 is now adjusted to give full scale deflection on the v.t.v.m. The special scale for this range can now be calibrated.

The range selector is then changed to 10 volts, and with a source of 10 volts a.c. from a few filament windings in series, the potentiometer R24 is adjusted for full scale reading.

The same procedure is then adopted for the 25 volt and 100 volt ranges with R25 and R26, it being assumed, of course, that the adjustment of the diode balancing resistances, mentioned previously, had already been carried out. All a.c. measurements and measurements of audio frequencies must be carried out with the external leads, as

OHMS CALIBRATION LISTS

Ohms	3v. Scale	0-1 Ma. Scale
1	0.273	0.091
2	0.5	0.166
3	0.692	0.251
4	0.856	0.333
5	1.0	0.412
6	1.125	0.478
7	1.235	0.545
8	1.335	0.612
9	1.425	0.678
10	1.5	0.75
12	1.636	0.833
14	1.746	0.917
15	1.8	0.991
20	2.0	1.333
25	2.142	1.714
30	2.25	2.0
35	2.335	2.333
40	2.4	2.666
45	2.45	3.0
50	2.5	3.333
60	2.57	4.0
70	2.63	4.666
80	2.665	5.333
90	2.7	6.0
100	2.73	6.666
150	2.81	10.0
200	2.855	13.333
300	2.905	20.0
400	2.928	26.666
500	2.94	33.333

If the 0-1 milliammeter is reasonably linear, the table above will give sufficient accuracy to enable the ohm scale to be plotted in terms of the 3 volt, or original 0-1 scale, whichever is used.

Immediate Delivery!

EDDYSTONE 680

15 VALVE COMMUNICATIONS RECEIVER

THE BIGGEST EDDYSTONE PRODUCTION TO DATE

Write for Details.

AVAILABLE SHORTLY . . .

EDDYSTONE 750-12 VALVE RECEIVER

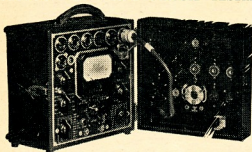
ADVANCE ORDERS TAKE NOW!

WILLIAM WILLIS & CO. PTY. LTD.

428 BOURKE STREET, MELBOURNE, C.I. Phone: MU 2426

VEALLS for all Radio Requirements!

TRANPO VALVE AND CIRCUIT TESTER



The compact and convenient Tester that is not only necessary to Radio Servicemen, but also to Radio Experimenters! Reads milliamperes, D.C. and A.C. volts, output volts and tests resistors, condensers, and valves. Slightly shop soiled. £27/10/- net.

LEXINGTON MOVING COIL PICK-UP

This famous English Pick-up gives performance never before thought possible. Full reproduction of the total audio frequency range. Complete with transformer, screening box and sapphire needle. Price: 12 inch, £7/13/6.

JEWEL AUTO-PACK

Simple to instal in your car! Operate your Electric Mantel Set from your car battery. Ideal for that camping holiday. 2½ to 4 amp. drain from battery. Price, £9/9/-.

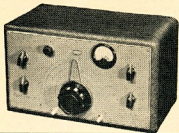
"UNIVERSITY"

S.G.A.

Signal Generator

Frequency 155 Kc. to 110 Mc. Seven Bands!
Price £47 (plus 8½% Tax).

FULL RANGE OF
UNIVERSITY TEST GEAR
AVAILABLE



SPECIAL SNAPS!

Famous TECNICO Crystal Pick-Up with permanent built-in sapphire stylus; 84/- AEGIS Insulators, all types available. Ham discount!
ROLA Speakers: 12R, £11/15/6; 8W, £2/5/7; 6L, £2/1/2. Ham Discount!
MAGNAVOX 12 in. Speaker, 382L, 37½ oz. magnet, £4/1/7. Ham Discount!
AND REMEMBER, VEALLS' QUICK CHASSIS CUTTING SERVICE! Chassis for any circuits or special needs cut promptly and efficiently!
Let us quote you for your Ham Receiver, built to your specifications. Best parts available.

VEALLS

243 SWANSTON STREET, MELBOURNE
299 CHAPEL STREET, PRAHRAN.

Phone: FJ 3145.
Phone: LA 1605.

MAIL ORDERS: BOX 2141T, G.P.O., MELBOURNE.
Associated with ARTHUR J. VEALL PTY. LTD.—Est. 1911.



Every transformer looks to be simply coils of wire on a core . . . but the beauty of Trimax transformers is more than skin deep! Long experience and high standards of technical ability ensure that the unseen parts of your Trimax Transformer will prove their reliability in every test.

TRIMAX Transformers

(CLIFF & BUNTING PTY. LTD.) CHARLES STREET, NORTH COBURG

Interstate Representatives—Brisbane: Chardlers Pty. Ltd., Cnr. Albert and Charlotte Streets. Adelaide: C. N. Muller, Woranda Bldgs., Grenfell Street. Perth: R. D. Benjamin, 197 Murray Street. Tasmania: W. & G. Genders Pty. Ltd., 53 Cameron Street, Launceston. Enquire from your Nearest Supplier.

slipped into place, and the necessary connections to the remainder of the circuit made.

In the event of a fault developing in the switch bank or resistance strip, the whole unit can be removed, by unsoldering a few wires.

No details are given of the r.f. probe as it is felt that ideas will differ considerably on this matter, but as a matter of interest, the probe used in this instrument is 6" long and 1" in diameter.

The outer shield is a piece of 1" diameter brass tubing, and inside it is slipped a section of bakelite tubing, which has been split lengthways down the centre. Only one half of this tubing is used, and two circular ends are fitted to it, one of Polystyrene for the probe contact, and the other to take the lead connections.

The components are mounted in this bakelite "trough," and the brass tubing slipped over afterwards. A hole is fitted in its holder on the chassis.

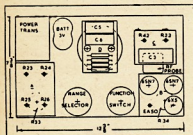


Fig. 3.

ALTERNATIVE LAYOUT

The second vacuum-tube voltmeter was built as shown in the rear view of Fig. 3. Four small sub-panels (A, B, C, and D) were constructed, all except panel B being of insulating material. These panels are mounted on pillars to keep them clear of the front panel components, which in some cases are located underneath. Panel D is supported by the two meter terminals, and carries the electrolytics, C5 and C6, and the voltage divider resistances for the power supply.

The r.f. probe in this case is built into an old i.f. can, and when plugged into the front panel, picks up the connection for C3 on panel C. This panel also supports the d.c. range set resistance and the diode contact potential balancer.

Panel B carries the two 6SN7s, 6X5 rectifier, and EA50 balancing diode. It is mounted sufficiently far from the front panel to clear the zero set resistance R34.

Panel A carries the four a.c. ranges set resistances and is also mounted so that it will clear the ohms set pot. R33.

All main voltage "stick" resistances, ohms, and diode balancing resistances are mounted around the range selector

switch, or if desired, resistance strips can be made up as previously mentioned.

The main circuit wiring is cabled to present a tidy appearance, and it is felt that this method of construction is easier, and more accessible than the first unit built.

It must be stressed that a few of the components vary in size and it is advisable when making up the small panels to make sure they are of sufficient size to take the components on hand.

FORMULA FOR DIFFERENT VALUES OF VOLTAGE "STICK"

For those who want to calculate different values of tappings for the voltage

"stick," the following simple formula will serve.

$$R_s = \frac{R \times V_m}{V}$$

where V = voltage range required at tap.

V_m = Fundamental range of v.t. v.m.

R = Total value of resistance "stick" required.

R_s = Total value of resistance from earth to tap in use.

E.g.—For 1,200 volt tap—

$$\frac{40 \times 3}{1200} = 0.1 \text{ meg. from tap to ground.}$$

Save time and money! Give your Gear the 1950 Look!

PANEL MARKING TRANSFERS

NOW AVAILABLE

Designed especially for the Amateur, SERIES ONE consists of a sheet of almost every conceivable name for the shack, communications receiver, transmitter, control panel, etc. These are finished in eighth inch silver modern capitals, and look superb on black or grey panels, smooth or crackle finished. The sheet of nearly 80 costs only 2/11, or less than 3d. each! They are easily applied, and come with full directions.

Nearly Ready—SERIES TWO (Audio, C.R.O., etc.), and SERIES THREE (complete list of Broadcast Stations).

ENQUIRIES WELCOME

AMATEUR RADIO PRODUCTS

46 WARRIGAL RD., SURREY HILLS, E.10, VICTORIA

or from Ham Radio, Collins, Willis, Gerard and Goodman, etc.

Trade Supplies: Direct or through R. H. Cunningham.

DURALUMIN TUBING FOR WIRELESS AERIALS

Stocks Now Available for Immediate Delivery

ALL DIAMETERS 1/4" TO 1 1/2" IN WALL GAUGES 16-18-20

Price List on request.

GUNNERSEN ALLEN METALS PTY. LTD.

67 YARRA BANK ROAD, SOUTH MELBOURNE

Phone MX 4621 (5 lines).

Telegrams: "Metals," Melbourne.

19th Federal Convention Action on Motions Carried

As a result of Agenda item 31 of the 19th Annual Federal Convention, the Federal Executive were directed by Federal Council to publish three months before the next Convention, dated summary of action on motions passed at the previous Convention. In accordance with this motion, the motions which were passed are enumerated below with the action resulting therefrom. Interested members should refer to the June 1949 issue of "A.R." wherein will be found on page 14 the voting and the form of motions.

AGENDA ITEMS

Item 1. VK3WIA has been temporarily operating from VK3UM, mainly keeping schedules weekly with WIAW, and occasional contacts with the R.S.G.B. and the N.Z.A.R.T.

2. Noted for future policy.

4. Action complete and promulgation of amendment made.

6. Endorsement of previous policy.

7. All Divisions have agreed to an increase in price to 7d. per copy. The Victorian Division, as publishers, send out three-monthly statements of the finances.

8. Adjacent frequencies not agreed to by P.M.G., but permission granted to operate the Emergency Nets on 3501 and 7002 Kc. These frequencies are for practice purposes, but should the occasion warrant, any frequency may be used.

10. Action taken by writing three consecutive Editorials on the subject and in re-publishing from time to time in Federal Notes.

16. The P.M.G. would not consider this suggestion with the great amount of additional work to put it into operation. The two licences are now handled by different Departments.

17. As Federal Executive, contrary to the motion, were not able to supply the P.M.G. with any instances of hardship, they would not agree to the motion. They consider the present system to work very efficiently and have had no complaints from Amateurs.

21. All Divisions with the exception of the N.S.W. Division have appointed observers, but very few reports are handed from those appointed. The P.M.G. have not been able to take any action with other Administrations so far, as the Provisional Frequency Board is still sitting in Geneva, and channels have not been finalised. Federal Executive, however, are determined to build up a file with the Department, which makes consistent reporting important.

23. Rules for permits contained in Federal Notes elsewhere, but Dept. will not grant privileges to all.

26. This motion, proposed by the W.I.A., is at present before the vote of the member societies of the I.A.R.U. Copies of the "A.R." are now sent to all member societies, so that results may be copied.

28. Action complete as this Rule was clarified in the 1949 VK-ZL Contest.

31. Action taken.

32. Policy, and noted by Divisional Councils.

33. For the policy book and all future Conventions.

GENERAL BUSINESS ITEMS

Item 1. Rules finalised and published.
2. As the Contest Manager and Contest Committee had extreme difficulty in formulating rules to suit equitably all States in an all band v.h.f. contest, the matter was referred to all Divisions for comments and suggestions which were few and did not solve the problem. As several Intrastate Divisional V.H.F. Contests are in progress, something valuable may be learned from these before an Annual W.I.A. V.H.F. Contest is inaugurated.

3. Conditions set out in 1950 N.F.D. Contest.

4. Has been in operation since the 19th Convention.

5. This was included in 1949 Rules.

7. Publication of bands allotted has been made.

8. The P.M.G. would not agree to this motion from the security angle and monitoring position.

9. Again, as no specific cases could be quoted, the P.M.G. considered the present system to be satisfactory; but would notify their State Superintendents of the correct interpretation of this regulation.

10. This protest has been registered with the P.M.G. and filed.

12. Advice received that the most space available would be every four months. This has been supplied on regulations and other topical matters.

14. All Divisions in favour with exception of Queensland.

16. The P.M.G. did not agree that the A.A.C. should be concerned with such matters, but undoubtedly, unofficial advice would be given if desired. The present system works efficiently and Inspectors are very co-operative.

18. All Divisions agreed to this motion, and it has been noted for future policy.

20. Published in Federal Notes of "A.R."

21. The first draft has been received and is being considered before passing to Divisions for their comments.

22. This motion is the actual amendment to the Federal Constitution and has been promulgated—supercedes Agenda item 4.

25. The 20th Annual Convention will be held in Melbourne at Easter, 1950, the 7th, 8th and 10th April.

Such are the results of the motions of the 19th Annual Convention, and represents some of the work of your Federal Council, in general, and Federal Executive, in particular. We trust the reading of this summary in conjunction with the motions has proved helpful to members, especially those in the country. All motions not shown, of course, were lost or rejected.

—W. T. S. Mitchell, Fed. Sec.

IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS

FEBRUARY, 1950

Nine of the charts, prefixed by the letter "C" for Canberra, refer to forecasts for the South-Eastern Australian States. The remainder, prefixed by the letter "P" for Perth, are for Western Australia.

The Canberra charts refer to the following world zones:—

Zone	Region	Terminal
1	Western Europe	London
2	Mediterranean	Cairo
3	N.-West America	San Francisco
3a	N.-East America	New York
4	Central America	Barbados
5	South Africa	Johannesburg
6	Far East	Manila

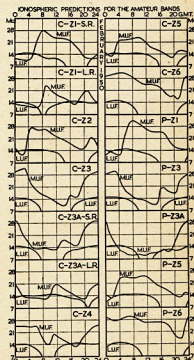
The Perth charts are similar to those based on Canberra.

QUIZ

The Prediction Service welcomes comments on the accuracy of its predictions. In particular, answers to the following questions on the Canberra-San Francisco circuit would be useful:—

1. Were good conditions experienced on 7 Mc. for the period 0800 to 1600 hours GMT?
2. Was the 28 Mc. band workable for a few hours around midnight GMT?
3. Was the 14 Mc. band workable only between 0500 and 1000 hours GMT?

Answers to the Quiz should be sent to the W.I.A. and should, if possible, refer to consistent results obtained on the majority of days in the month.



Compiled by J. K. RIDGWAY, VK3CR.

Amateur Radio, February 1950

Heralding

THE GREATEST AMATEUR
COMMUNICATIONS RECEIVER
OF ALL TIME . . . the

EDDYSTONE "750"



Further details from:

- VICTORIA: J. H. MAGRATH & CO., 208 Little Lonsdale Street, Melbourne.
- WILLIAM WILLIS & CO., 428 Bourke Street, Melbourne.
- N.S.W.: JOHN MARTIN PTY. LTD., 116-118 Clarence Street, Sydney.
- QUEENSLAND: CHANDLERS PTY. LTD., Corner Albert and Charlotte Streets, Brisbane.
- WESTERN AUSTRALIA: CARLYLE & CO. LTD., Hay Street, Perth, and 397 Hannan Street, Kalgoorlie.
- ATKINS (W.A.) LTD., 894 Hay Street, Perth.
- SOUTH AUST.: GERARD & GOODMAN LTD., 192-196 Rundle Street, Adelaide.
- TASMANIA: W. & G. GENDERS PTY. LTD., 53 Cameron Street, Launceston, and Liverpool Street, Hobart.
- LAWRENCE & HANSON (ELECTRICAL) PTY. LTD., 120 Collins Street, Hobart.
- NOYES BROS. LTD., 36 Argyle Street, Hobart.

Featuring:—

- Coverage 480 Kc/s. to 30.5 Mc/s.
- 200:1 ratio dial reduction.
- Modern miniature valves.
- Three watts of audio.
- Double detection super-heterodyne (1,600 and 85 Kc/s.).
- Stabilised H.T. supply.
- Provision for external S meter.
- Variable selectivity I.F.s.
- New and improved dial provides ample band spread on Amateur Frequencies.

AVAILABLE EARLY 1950

Place your order NOW with your Distributor

Australian Factory Representatives: R. H. Cunningham & Co., 62 Stanhope St., Malvern, Vic. (UY 6274)

BELLING LEE

This is one of the famous old British names in radio and one that you have seen frequently advertised in English journals and therefore requires no introduction from us.

It is our policy to bring to the amateur and professional radio field in Australia only quality products in which an investment means a financial saving and an insurance of faithful and efficient performance. For this reason we are proud to mention a few of the good things made by Belling & Lee Ltd. They are obtainable from all good Eddystone distributors throughout Australia.

AERIALS.—The SKYROD anti-interference aerial is 18 feet in length, made in five sections and is complete with fittings for lashing to a chimney or to a mast head. Erected on a chimney or mast, this aerial is well free of man-made interference and vastly improves the signal-to-noise ratio.

"ELIMINOISE" is the name given by Belling Lee to a system of extremely efficient transformers and feeder cables for the eradication of noise. A complete kit is available for use with horizontal dipoles or the SKYROD vertical aerial. The kit consists of the aerial transformer L306, which is mounted right at the aerial feed point. This unit possesses a balanced RF transformer complete with Faraday screen between windings for the reduction of capacitive pick-up. The receiver "ELIMINOISE" (L307), which is mounted right at the receiver input terminals, is a similarly made RF transformer and is balanced to respond evenly over the 10-50 metre and the 200-2000 metre bands.

L1221 feeder is a 60 to 75 ohm balanced twin shielded RF cable used in conjunction with L306 and L307 above. No pick-up of noise can occur between the aerial and the receiver with this polythene insulated and screened with copper mesh type of cable.

The Belling & Lee aerial systems are available as either complete kits or may be purchased as components as desired. Noise reduction of 10 db or better is possible with the "ELIMINOISE" system and the automatic balancing of impedances adds further gain to any communication receiver.

—R. H. CUNNINGHAM AND COMPANY, MELBOURNE.



FEDERAL, CSL, and DIVISIONAL NOTES

Federal President: W. R. Gronow, VK3WG; Federal Secretary: W. T. S. Mitchell, VK3UM, Box 2611W, G.P.O., Melbourne.

NEW SOUTH WALES

Secretary—Geo. Cameron (VK2GC), Box 1734, G.P.O., Sydney.
 Meeting Night—Fourth Friday of each month at Science House, Corner Gloucester and Essex Sts., Sydney.
 Divisional Sub-Editor—L. D. Cuffe, VK3AM, 14b Watson Street, Neutral Bay, N.S.W.
 Zone Correspondents—North Coast and Tablelands: P. A. H. Alexander, VK2PA, Hill St., Port Macquarie; Newcastle: H. Whyte, VK3AH, Vale St., Birmingham Gardens, Newcastle; Adelaide: H. L. Hawkins, VK2YA, 27 Comfort Ave., Cessnock; Western: G. J. Russell, VK2QA, 116 Hogan St., Kyngar; South Coast and Southern: R. H. Rayner, VK2DO, 42 Pettit St., Yass; Western Suburbs: A. C. Pearce, VK2AHB, 48 Harrbrook Ave., Five Dock; Eastern Suburbs: H. Kerr, VK2AY, No. 4 Fitz, 144 Ewinst St., Bronte; North Sydney: L. D. Cuffe, VK2AM, 779 Military Rd., Mosman; St. George: J. A. Ackerman, VK2AD, 23 Park Rd., Carington; South Sydney: V. H. Wilson, VK2IV, Cr. Wil-son St. and Marine Pde., Maroubra.

VICTORIA

Secretary—C. C. Quin, VK3WQ.
 Administrative Secretary—Mrs. O. Cross, Law Court Chambers, 21 Queen St., Melbourne.
 Meeting Night—First Wednesday of each month at the Radio School, Melbourne Technical College.
 Zone Correspondents—North Western: R. E. Trebilcock, VK3TL, 112 Victoria St., Kerang; Western: C. C. Waring, VK3YW, 12 Sirens St., Stawell; South Western: W. H. Ross, VK3UT, Ballantraine, via Warrnambool; North Eastern: J. A. Miller, VK3AD, "Eriana" Avenue, Fair North-Western Zone: Harry Dobbyn, VK3MF, 42 Walnut Ave., Mildura; Eastern Zone: Mrs. P. M. Churchward, VK3US, "Shirley," Red Hill.

FEDERAL

DX C.C. LISTING

PHONE

VK3JD (1)	37	138
VK3RU (2)	37	130
VK3WV (3)	37	129
VK3BZ (3)	39	126
VK4JP (8)	39	114
VK3DD (6)	39	112
VK3AL (10)	39	113
VK3LN (11)	39	110
VK3IO (5)	39	100
VK3W (7)	39	100
VK4KS (9)	39	160

C.W.

VK3BZ (6)	40	163
VK3CX (1)	40	144
VK3VW (4)	39	128
VK4EL (9)	39	135
VK3QL (5)	40	123
VK3KB (10)	39	129
VK4HR (8)	40	125
VK3EK (3)	39	122
VK4FP (11)	39	110
VK3EO (8)	40	116
VK3FH (15)	37	115
VK4DA (7)	38	113

New Member—

VK4DO (20)	39	101
VK3JE (21)	39	108

OPEN

VK3BZ (6)	40	185
VK3RU (8)	37	163
VK3DI (2)	39	160
VK3HG (3)	40	155
VK3L (12)	39	151
VK4HR (7)	40	151
VK3KD (13)	39	149
VK3MO (5)	39	139
VK3OP (19)	39	137
VK3EX (1)	40	136
VK4EL (10)	39	135
VK3AD (28)	40	133

New Member—

VK3KB (30)	39	103
------------	----	-----

COUNTRIES LIST

There has been a mix-up in the status of contacts with Newfoundland and Labrador for which we must apologise. The true story is now that any contacts taking place before the 31st March, 1949, will be counted as an extra contact for those who have the necessary card. Credit for Newfoundland has been given to those members of the DX C.C. who previously had it deducted, and

WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK2WI.—Sundays, 1100 hours EST, 7195 Kc. and 2000 hours EST, 554 Kc. No frequency checks available from VK2WI.
 Intra-State working frequency, 7175 Kc.
 VK3WI.—Sundays, 1130 hours EST, simultaneously on 3580 and 7196 Kc. and re-broadcast on 50 and 144 Mc. bands. Intra-State working frequency 7185 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI.—Sundays, 0900 hours E.S.T. simultaneously on 3750 Kc., 7196 Kc., 14342 Kc., 62.4 Mc. and 144.158 Mc. Frequency checks are given two nights weekly, and the times are announced during Sunday broadcasts. 7165 Kc. channel is used from 1000 to 1030 hours each Sunday as VK4 query service to VK4WI.

VK5WI.—Sundays, 1000 hours SAST, on 7196 Kc. Frequency checks are given by VK5DW on Friday evenings on the 7 and 14 Mc. bands.

VK6WI.—Saturdays 1400 hours, Sundays 0930 hours WAST, on 7196 Kc. No frequency checks available.

VK7WI.—Second and Fourth Sundays at 1000 hours E.S.T. on 7196 Kc. No frequency checks are available.

the totals in the Listing have been amended accordingly. Those members of DX C.C. who have not previously been credited with it should send in the card with their next batch.

Add to January "Countries List"—Newfoundland and Labrador (2, 5), (contacts before 31st March, 1949), VO.

19th FEDERAL CONVENTION ITEMS

Elsewhere in this issue will be found that action taken by Federal Executive on motions passed at the 19th Convention. This is published for your (yes, YOU!) information, so please spend a few minutes and read it. By so doing you will see something of the work of your representatives. It is hoped also that it will be used by Divisional Councils to "cull out" the "hardy anomaly."

REMEMBRANCE DAY RESULTS

As some adverse comment has been made on a paragraph in the official results regarding multiplier, it is desired to apologise for this comment (which is not the official one) but was the personal opinion of the scribe.

FRENCH ANTARCTIC EXPEDITION

After their unsuccessful attempt to reach Adelle Land last year, the French Antarctic Expedition is again on the way—with more success this time. We hope, for on board this time is CSBA80 who will be the operator of FB8AX, the official amateur call. Look for them on 10 and 20 metre phone and c.w.

W.I.A. ACTIVITIES CALENDAR

Feb. 7: Appointment of Federal Councillors.

Feb. 19: 20th Convention Items due with F.E.

Feb. 28: Convention Per-Capita due with F.E.

End of fiscal year of Divisions.

Mar. 10: Agenda for 20th Convention issued.

Mar. 17: Annual Per-Capita from Divisions due with F.E. not later than this date.

Mar. 31: End of fiscal year for F.E.

Apr. 7, 8, 10: 20th Annual Federal Convention in Melbourne.

QUEENSLAND

Secretary—W. L. Stevens, VK4TB, Box 638Z, G.P.O., Brisbane.
 Meeting Night—Last Friday in each month at the Y.M.C.A. Rooms, Edward Street, Brisbane.
 Divisional Sub-Editor—F. H. Shannon, VK4SN, Minden, via Rosewood.

SOUTH AUSTRALIA

Secretary—E. E. Harbier, VK5MD, Box 113AK, G.P.O., Adelaide.
 Meeting Night—Second Tuesday of each month at 17 Wymouth St., Adelaide.
 Divisional Sub-Editor—W. W. Parsons, VK5PS, 483 Explained, Henley Beach.

WESTERN AUSTRALIA

Secretary—W. E. Coxon, VK5AG, 7 Howard St., Perth.
 Meeting Place—Padbury House, Cur. St. George's Ter. and King St., Perth.
 Meeting Night—Watch the Monthly Bulletin.
 Divisional Sub-Editor—George W. Ashley, VK6GA, 35 Mars Street, Carlisle, Western Australia.

TASMANIA

Secretary—R. D. O'May, VK7OM, Box 371B, G.P.O., Hobart.
 Meeting Night—First Wednesday of each month at the Photographic Society's Rooms, 165 Liverpool St., Hobart.
 Divisional Sub-Editor—Capt. E. J. Cruise, VK7JZ, Angelsea Barracks, Hobart.
 Northern Correspondent: C. P. Wright, VK7LZ, 3 Knight St., Launceston.

FREQUENCY ALLOCATIONS

The following is a list of the bands available for use by the Amateur Service in Australia, followed by the types of emission allowed on those bands.

3.5 to 3.8 Mc.—A1, 3, 3A, 6F3.
7.0 to 7.2 Mc.—A1, 3, 3A, 6F3.
14.0 to 14.4 Mc.—A1, 3, 3A, 6F3.
30.96 to 27.28 Mc.—A1, 3, 3A, 6F3.
28.8 to 30.0 Mc.—A1, 3, 3A, 6F3.
30.0 to 34.0 Mc.—A1, 3, 3A, 6F3.
144 to 148 Mc.—A0, 1, 2, 3, FM, Pulse.
288 to 296 Mc.—A0, 1, 2, 3, FM, Pulse.
576 to 688 Mc.—A0, 1, 2, 3, FM, Pulse.
1216 to 1296 Mc.—A0, 1, 2, 3, FM, Pulse.
2304 to 2480 Mc.—A0, 1, 2, 3, FM, Pulse.
3680 to 3856 Mc.—A0, 1, 2, 3, FM, Pulse.
10080 to 10800 Mc.—A0, 1, 2, 3, FM, Pulse.
21000 to 22008 Mc.—A0, 1, 2, 3, FM, Pulse.
30000 Mc. and higher—A0, 1, 2, 3, FM, Pulse.

Note.—6F3 emission represents a maximum deviation from the quiescent frequency of plus or minus 3 Kc.

RECORDING AND RE-TRANSMISSION OF AMATEUR TRANSMISSIONS

As a result of representations made to the Dept. on Agenda item 23 of the 19th Convention, the publication of the rules governing the issue of these permits is given below.

"The Department, as you know, is totally opposed to transmission of recordings from Amateur Stations but realises that, in certain cases, re-transmission of Amateur signals may produce beneficial results. It was intended that such recordings should be made only in cases where evident faults in transmission justified such action. It is proposed to relocate permits each September, or as a vacancy exists.

"Conditions governing the issue of such permits require, before an application may be considered, that the licensee concerned must satisfy the Department that:—

- he has equipment capable of producing recordings of good quality;
- he has had adequate experience in sound recording;
- he is actuated solely by a desire to improve conditions on the Amateur frequency bands (permits are not issued to enable licensees to extend their knowledge of the subject);



- ★ The Ham specially catered for.
- ★ Quality Cards at economical prices.
- ★ Prompt Service.
- ★ One, two or three colours if required.
- ★ Interstate orders handled.

Dee Why Printing Works

67 HOWARD AVENUE, DEE WHY, SYDNEY.

Telephone: XW 8367.

Proprietor: GEOFFREY BOWER

QSL CARDS

The DEE WHY PRINTING WORKS is making available to the Amateur Experimenter a Special QSL Card Printing Service. Knowing the requirements of Hams, we are confident the service offered will be unsurpassed in Australia.

Cards can be printed to your own specifications, and if illustrations or blocks are necessary, our Art Department can produce these for you.



McGILL'S (Est. 1860)

OVERSEAS AND LOCAL POPULAR MAGAZINES
OBTAINABLE ON SUBSCRIPTION

AMERICAN . . .

Audio Engineering, £1/16/-; CQ, £1/17/6; Communications (now Television Engineering), £2/2/6; Electronics, £10/5/-; Popular Science, £1/16/-; Popular Mechanics, £2/0/9; QST, £2/9/6; Radio News, £2/4/-; Radio Electronics, £2/2/3; Science Digest, £1/13/-; Science and Mechanics, £1/7/6; U.S. Camera, £1/14/3.

ENGLISH and AUSTRALIAN . . .

Australian Radio World, 16/-; Amateur Radio, 9/-; Electronic Engineering, £1/12/6; Radio and Hobbies, 12/-; Radio and Science, 12/-; Shortwave Magazine, £1/7/6; Wireless World, £1/12/6; Wireless Engineer, £2.

(Add exchange to Country and Interstate Cheques.)

Large Range of Technical Books, Stationery and Novels on Display.

Mail Orders by Return Post.

McGill's Authorised Newsagency

183-185 ELIZABETH STREET, MELBOURNE, C.I., VICTORIA.

(The G.P.O. is opposite)

M 1475-76-77

A. & R. ELECTRONIC EQUIPMENT CO. PTY. LTD.

We manufacture a full range of Transformers and Reactors suitable for use by Amateurs.

The following are selected types available at Trade Prices:—

PT1356—400/400 v. 150 Ma., 2.5v. 5a., 2 x 6.3v. 2a., 5v. 3a.
 PT1380—450/450 v. 200 Ma., 2 x 6.3v. 2a., 5v. 3a.
 PT1400—425, 565 v. per side C.T. 250 Ma., 2 x 2.5v. 2.5a.,
 2 x 6.3v. 3a., 5v. 3a.
 PT1371—500, 750, 1,000 v. per side C.T. 300 Ma.
 PT1368—1,000, 1,250, 1,500 v. per side C.T. 200 Ma.
 PT1316—10v. tapped at 5v. and 7.5v. 6a.
 PT1525—2.5v. 10a. for 866s, 1,000 v. DC Work. Insulation.
 PT1305—2.5v. 10a. for 866s, 2,500 v. DC Work. Insulation.

Z1012—35h. max. 20h. 100 Ma. DC, 430 ohms, 1,000 v.
 DC working.
 Z956—30h. max. 20h. 200 Ma. DC, 160 ohms, 1,000 v.
 DC working.
 Z962—"Swinging" Choke 20/200 Ma. DC, 100 ohms,
 1,000 v. DC working.
 Z983—"Swinging" Choke 30/300 Ma. DC, 90 ohms,
 1,000 v. DC working.
 Z986—15h. max. 10h. 300 Ma. DC, 60 ohms, 1,000 v.
 DC working.

Please write for illustrated catalogue listing our full range.

A & R ELECTRONIC EQUIPMENT CO. PTY. LTD.

1 LITTLE GREY STREET, ST. KILDA, MELBOURNE, VICTORIA.

PHONE: LA 3657

Trade Sales:—

WM. WILLIS & CO., 428 Bourke St., Melbourne (MU 2426).
 J. H. MAGRATH & CO., 208 Lt. Lonsdale St., Melb. (Cen. 3688).

Wholesale Distributors:—

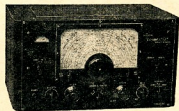
R. H. CUNNINGHAM & CO.,
 62 Stanhope St., Malvern, S.E.5 (UY 6274).

Setting a New Standard in Communication Receivers—

The "Commander" Double Superhet.

Free Data Sheets on Request

Interstate Representatives: West. Aust.—Messrs. Atkins (W.A.) Ltd., 894 Hay St., Perth. Queensland—Messrs. A. E. Harrold, 123-5 Charlotte St., Brisbane. In other States direct your inquiries to firms handling Bright Star Crystals.



T.C.C. 1.5 uF. 4,000 v.w. Condensers, £2 each. Chanex 2 uF. 3,000 volts d.c. working, £1/15/- each.
 Ferranti 0-500 Microampere Meters, luminised dial, new, £2 each.

VALVES—R.C.A. 834, new, £1/8/- ea. Sylvania 807s, 15/- ea. R.C.A. 6U7Gs, new, sealed cartons, 9/- ea. Sylvania 6X5GTs, new, sealed cartons, 10/- ea.

Wanted to Buy—TYPE 3 MARK II. TRANSCEIVERS in good order.

CRYSTALS, as illustrated, 40 or 80 mx., AT or BT cut. Accuracy 0.02% of your specified frequency, £2/12/6 each.

20 metre Zero Drift, £5 each. Large, unmounted, 40 or 80 metre, £2 each.
 Special and Commercial Crystals—Prices on application. Crystals re-ground, £1 each.

BRIGHT STAR CRYSTALS may be obtained from the following Interstate firms: Messrs. A. E. Harrold, 123 Charlotte St., Brisbane; A. G. Healing Ltd., 151 Pirie St., Adelaide; Atkins (W.A.) Ltd., 894 Hay St., Perth; Lawrence & Hanson Electrical Pty. Ltd., 120 Collins St., Hobart; Collins Radio, 409 Lonsdale St., Melbourne; Prices Radio, 5-6 Angel Place, Sydney.

A.W.A. Split Stator Transmitting Condensers, high voltage, £2/15/- each.

Screw-type Neutralising Condensers (National type), suits all triode tubes, Polystyrene insulation, 19/6 ea.

Prompt delivery on all Country and Interstate Orders.

Satisfaction Guaranteed.

BRIGHT STAR RADIO

1839 LOWER MALVERN ROAD, GLEN IRIS, VIC. Phone: UL 5510.

Page 17

Mackay (4KW).—4EW has moved to Brisbane, 4BQ is preparing to move to the country and has built up a generator powered job for the new QTH. He has been active trying out the new rig before he moves. 4KR now has a 30 ft. steel tower and is building the boom to go on top with a four element on 20. 4FH once again shifting to a new QTH, believe John is going to give 4KR some QRM. 4MA has been active after a long recess and has been heard the last few weeks on low power.

4AM now installing a v.f.o. Visitors at Mackay during the first part of December were 4XV, from Brisbane, and 4BQ from Bundaberg. After many weeks of poor conditions on the 14 Mc. band and thus being unable to maintain the weekly skeed with 4KW, it was due to short skip on the 28 Mc. band that we were able to contact the zone manager 4KW, and so once again put the Mackay zone into the notes.

Townsville (4GD).—Here again short skip enabled us to contact 4GD on the 28 Mc. band. QSB prevented us from getting more than one item of news, that being that 4RW is now using a two element rotary beam on 14 Mc. fed by 75 ohm ribbon.

Bundaberg (4LJ).—4UK has recovered from his illness and doing very well on 7 Mc. band. Frank is not satisfied with his hand-switching rig and may change over to plug in coils. Our old zone manager, 4BL, has given radio away for the time and has sold out all his gear. We believe that Jack, 4OW, has a shack full of surplus gear now, and has found time to erect the 4BQ tower in his own back yard, and hopes to have the beam going soon. Heard 4HE on 7 Mc. phone from the new QTH. 4XJ settled back in Bundy and heard working some nice DX on 10.

Gympie (4HZ).—4CR very quiet lately. 4XR has a rotary folded dipole doing yeoman service, however we believe Eric has some dural for a new beam. 4LN playing around with a DR100 converted to the 7 Mc. band. 4RA has a new harmonic, 4HD is torn between two desires—one to keep an eye on the 6 metre band for that big break through to the Wa, the other to work all the DX coming through on the 28 Mc. band. Judging by what we have heard at this location, you have been kept very busy Max working the Yanks on 10. 4HZ has an extended double zap, which Jim is thinking of extending into the 8K beam. Nice work Jim, working the Yanks and that XZ on 20.

Darling Downs (4CG).—About the only item of interest is the 6 metre band. 4XN and 4CU are getting their share of the 50 Mc. openings. The 14 Mc. band has been off at night, only stations being heard were VK3, VK5, and Austins (especially the Ham Band Commercial). During the month, 4QD worked VPI, TAJ, EA, DE, AP, and the usual DX. The 28 Mc. band has been good with Wa and VEs in the morning and patchy openings to Europe at night. 7 and 3.5 Mc. are useless most nights. 4DA and 4RF inactive. No news of 4RE. 4WT very active on 7 Mc., particularly in the mornings.

Brisbane (4EL).—4RC, with a new exciter unit (6V6, 6NT, 807), put up a huge score in the QY Contest using all bands and 33 watts. 4GB installed a brand new 813 in place of the p.p. 8A and is doing well with the DX, heard a lot on 28 Mc. 4GB, welcome to Brisbane Eric, noticed you calling QY on 28 Mc. Will be interesting to see how the new location compares with that Margo and Grapefruit Grove up in Townsville. 4FH has been mighty busy knocking over Europeans galore, with a nice new three element beam. 4AP, as is usual these days, piling up the DX due mainly to the excellent antenna arrays used. All goes into the antenna business thoroughly and keeps careful record of the various types used. The latest, a three tier stacked array of multi-elements, enables him to work DX that can't even be heard by any one else. Nice work Alf!

4GJ is heard with a beautiful TRX QRM that is emanating from the good old T9X oscillator. 4RT was heard on 28 Mc. with nice quality phrase and also heard on 7 Mc. phone. 4EX is threatening a "come-back" on all bands, so hurry up Eric, that familiar copper plate fat is missing as a good example to the boys. 4IR, old Tibby, was heard talking of trying the new "frequency modulation" with just a 1N34 diode and a mike for the modulator. 4EL was first reported to be a commercial in the 7 Mc. band recently, but turned out to be old Eric knocking over Wa in the recent "QY" Contest, at a terrific rate, and is believed to have scored 5,000 points on 7 Mc. alone. Eric has just completed his 190th QSO with 5GZL. 4KH, everyone will be glad to hear that Bill is slowly recovering from recent "low" troubles, and after leaving hospital minus a "big toe" is on the way to recovery. 4JA has built yet another receiver and is talking of beams of the rotating type, running 50 watts to an 807 final plus 10. 4XG seems to be doing very well with his "plumber's delight," knocking over Europeans on 28 Mc.

The monthly general meeting for December took the form of a Xmas social and to say that it was a success would be a gross understatement. 5LW, who shouldered the main job of organising the social, deserves all the praise that has been bestowed on him by those present. The function in previous years has always been of a joint nature between the W.I.A. and the I.R.E., but this year it was only the W.I.A., the I.R.E. having held their social some time before. Incidentally apologies were received from Mr. Tyrrell (President) and Mr. Govell (Secretary) of the I.R.E., regretting their inability to attend. A short resume of the night's doings will not be amiss, and with Rose Kelly's comments (and an 88 plate 4S do one at that) the social started off with a bang. The toast of the King was proposed by the President (Hal Austin, 6AW), and that of the visitors by the Secretary ("Doc" Barber, 6MD). "Doc's" experience in welcoming visitors stood him in good stead in this case, that's what Rose said anyway. The Chief Radio Inspector (Mr. H. K. Burbury) responded in a very pleasing manner to this toast, and stressed the amiable relations existing between his Department and the Amateur. The toast of the W.I.A. was proposed by Douglas Whitburn, 6BY (and who would be more fitted to do this), and the President responded with an excellent speech. The show was kept going at top speed by Jimmie Mundy (comedian), Mel Whitbread (piano accordion), and Ted Jobbins (magician). The tucker was excellent and everybody left for home more than satisfied with the Xmas Social of 1949.

My apies tell me that some of the VK5 boys were discussing recently as to whether the Xmas social should be wet or dry, and 6GP very dryly said, "why not hold two Xmas socials, one for the wets, and one for the dries, complete with a Xmas tree with pretty lights for the dries. Very subtle, very subtle. Owing to the call of duty I was unable to attend the social, and I was very sorry to miss the magician, as they tell me that some of his tricks were a knockout, especially the one where he plucked rabbits out of the air, and hares from somewhere or other. I always miss out on the good things.

The approach of the Festive Season, plus the very ordinary conditions existing on nearly all bands apparently caused the average Ham to desert the air, and consequently I have heard very little gossip this month, although 6RW seems to care little for conditions or the Festive Season, because every time that I switched on the receiver he was in

100% TUBULAR CAPACITORS

INFORMATION BULLETIN

U.C.C. wax-moulded paper tubular capacitors have very stable characteristics and conservative voltage ratings. They are moulded in high-melting-point synthetic wax designed for minimum moisture penetration. The capacitors are made from aluminium foil for low power factor. Extended life tests show little reduction in insulation resistance when operated at 140° F. at 95% relative humidity.

SPECIFICATIONS

- Flash Test—4 times rated working voltage.
- Insulation Resistance—1,000 megohms per mfd. (min.).
- Capacity Tolerance up to .01 mfd. \pm 25%.
- Above .01 mfd. \pm 20%.

UNITED CAPACITOR CO. PTY. LIMITED

53 CARRINGTON ROAD, MARRICKVILLE, NEW SOUTH WALES.
POSTAL: Box 49, Marrickville. PHONE: LK 3211.

Associated with Technic Limited of Australia and Telegraph Condenser Co. Ltd., British Insulated Callender's Cables Ltd. and United Insulator Co. Ltd. of England.

65/HPI

is headed for a re-build so GJP has stepped into the breach and loaned John another. Talking of GJP it's said Jack has gone high power! He equippers a full 10 watt from generator running on a newly installed 32 volt lighting system. Jack is not sure whether to be pleased or sorry that the G.L. line days are a mile off his GFL. At least while most metropolitan VKs are victims of that hour of power racket, again he can boast continuous power.

A newcomer heard on 7 Mc. is GBP with 50 watts of f.b. plate modulated phone. A strange alarm voice calling in the wilderness of forty was finally identified as having been heard by the author. Mal. Another who could also be almost classified a stranger was GMP putting Manjimup back on forty. Said to be haunting shacks in the Perth area, ex-OKP into the future. Hope you can stay this time Bill. Heard at intervals on various bands pursuing their favorite hobby have been GGS, GGR, GGR, GBO, GFW, GFW, GFW, GGS, GGU, GYZ, GSA, GSA, GRW, GCP, and GDD. So long chaps, see you next month.

.....

TASMANIA

At the General Meeting held on Wednesday, 7th December, present were Watson, Jensen (in chair), T. Allen, F. Gee, D. Mason, M. Watson, Millin, Evans, Richardson, Fulton, Anderson, Sidebottom, Porthouse, Brown, D. Davis, D. Smith, H. Cannon, Cruise, and Allanby. Apologies from Messrs. Clarke, Exwell, Barker, Nicholls, Oldham, A. Allan, C. Walsh. The lecture given by Mr. Max Sidebottom on Selenium, Gemstones and what have you was much enjoyed by all and was interspersed with numerous humorous anecdotes (that's putting it politely).

Geoff Clarke, TTA, was noted into the temporary position of writing these notes, and also in company with Max Sidebottom (it's that man again), was ex-OKP into performing on the Social Committee to organise the Annual Dinner, etc., which will take place on 4th March, at 7.15 p.m., at a certain restaurant one floor below a certain b.c. station at 82 Elizabeth Street, Hobart. Collections of five bob a head will be taken any time between now and dinner night or then no cash, no dinner. January meeting lecture was by Mr. Allan Morris by on 144 Mc. gear and the additional display of gear really got the lads in. Looks as if two will at last become active (we hope). TBM and TAJ assisted with their own findings.

ANNUAL STATE CONVENTION

All Northern and Country Members are requested to contact TOM, TBS, TTA, or their Divisional Secretaries before 15th February. It's your own fault if you miss out.

POISONALITY PARADE

I haven't aapt too well after last month's effort, but here goes again. From TOM, he worked VK1AJT. Macquarie island on 14 Mc. phone. John was having him trouble. When it disappeared later, Bob called him up again and reported it. John has v.f.o. controlled rig and is on various parts of 14 Mc. band with no particular place of abode. Was intrigued to hear that we had snow on mountain, as temperature at time there was 75 degrees and weather calm.

The month's visitors included VK9XV and VK4ABZ/ABC. Formerly of the home of the Garden City, but although I had a yarn with him I can't even remember his name, though could run through his rig for you if needed. He and the YXL were vacationing.

The YXL were vacationing. The visitor Bob Bodall, is the well-known six metre DX man, and after quite a chase, THT and TAJ ran Bob to ground of the golden pub in town and got the inside gen on v.h.f. divisions in VK2.

Local DX. Well Joy, YVL was heard calling CQ on a practically dead band, when back came TV5AZZ before 1800. The YVL was on the YXL do the calling in future. Then DX should come easily. TAJ has at last returned to the ranks of the phone gang with an f.b. modulator unit, AB1 801s, and within half hour of its completion

CLASSIFIED ADS.

Advertisements will be accepted under this heading from the trade, and/or others who are actively engaged in trading as a livelihood. Rate: 15/- per inch.

100 and 1,000 Kc. STANHOPE

100 and 1,000 Kc. genuine G.E. vacuum mounted crystals, 0.01% accuracy, brand new; suitable for Bendix Meters and other instruments. £5/5/- plus sales tax (8/9) and post, R. H. Cunningham and Company, 62 Stanhope Street, Malvern, Vic. UY 6274.

received a 5-9 report from VK4 with nice quality. Len also has new masts in hand and looks like new antennae are order of the day. TAP has finished new desk console which would put many a b.c. station to shame. K2UN looks "Amateurish" along side Bob's layout, and that's saying something. But Bob says he's got single switch station control or provision for f.o. setting.

It mightn't be a bad idea if all OMs were to read Page 492, 1949 edition of A.R.R.L. Handbook. Can YOU answer YES to all five of the questions? If you can't, then it's about time the shack was re-organised. TAP's new receiver is completed—shades of the 400, TCT, of Hoonville, on 40 again like a ghost from the past—might be a good one, Terry. TET goes to live at Longley, and found ex-G5VF right alongside—well they say it's a small world. TTA vacationed by now and probably will be heard from most shacks between here and Timbuctoo. Will be in VK2, 3 and 5 over a period of three weeks.

A competition for auxiliary gear construction will be held and judged by a panel of professionals at the Annual Dinner. Emphasis is of workmanship, and item must exceed one cubic foot in volume and must be accompanied by a statement signed by two reputable members as to the working order of the item. Mr. Len Cronks has kindly donated three guineas as first prize and there will be other prizes also, so do your best chaps. Competition is open to all members and associates and all are invited to bring along to the Dinner and DON'T FORGET the signed statement.

NORTHERN ZONE

Owing to the holidays, activity has been rather limited also as the only stations operating have been on 50 Mc. I cannot comment here. TAP having fully covered these activities for inclusion in the v.h.f. pages.

As I write these notes a message has sneaked through via the grapevine that it has been arranged to pass a vote of hate at our next meeting against a local Amateur who heard a VK3 on 144 Mc. in Launceston and then lost the piece of paper he wrote the details on.

TBQ is on holidays in Hobart at present and we are all waiting to see how much time he will arrive home with. TRK is more interested in building a new receiver than in operating. TFF busy chasing DX on 80 Mc. and in the "in-between intervals" is constructing a 144 Mc. beam. AS has also been bitten by the building bug, the latest being a super for 144 Mc. TLE also busy trying to draw a new radiation pattern. AS has open the nights I am at home. At present all the gear run home and listen on 50 Mc. as soon as they know I am out. This system has helped their scores considerably in the v.h.f. contest.

Once again the old, old saying, "Once a Ham always a Ham," has been proved true. Many an old timer will remember Chris, VK3XW. Chris has now renewed his licence and can be heard on 7 Mc. phone quite often as VK3XW. Welcome back to the ranks Chris.

Have noted a few mentions in town wearing the W.I.A. badge, but until today I had managed to dodge them. This afternoon my luck gave out because BOJ and JOO caught me unawares so it looks as though my last bottle of Xmas cheer is due to become extinct. Anyway I suppose it's for a worthy cause.

The next meeting is to be held at the King's Hall, Launceston, on 10th February, at 8 p.m. All are invited to attend.

CORRESPONDENCE

The opinions expressed in these letters are the individual opinions of the writer, and do not necessarily coincide with those of the publishers.

INTERFERENCE TO AIRCRAFT

Dept. of Civil Aviation,
252-536 Lt. Collins St.,
Melbourne, C.I.

Editor "A.R.", Sir,
During the last few months, aircraft flying in the Melbourne area have been experiencing interference on the control tower frequency of 118.1 Mc. The manufacturer manifesting itself as a broadcast station programme.

2. The characteristics of the interference indicate that it is a cross-modulation effect, the factors leading to this reduction being as follows:—

1. The interference is intermittent.
2. The signal strength varies.
3. The quality of reproduction varies greatly.
3. With cross-modulation, two interfering carriers are necessary, and, although identification of the broadcast station and the carrier of the identification of a possible second carrier is presenting many difficulties. One possibility under consideration is that an Amateur operating in the

28-30 Mc. band, and in particular on 29.5 Mc. has an installation which gives fourth harmonic radiation as well as the fundamental frequency.

4. It would be appreciated by the Departmental Officers investigating the interference if members of your organisation who hold amateur licences would check their station logs to see if they have been operating on the frequency band indicated at the dates and times listed below:—

Dates	E.S.T.	Dates	E.S.T.
14/9/49	1047	12/10/49	1826
22/9/49	1842	13/10/49	1155
23/9/49	2037	14/10/49	1515
25/9/49		15/10/49	1821
1/10/49	1738	20/10/49	0856
2/10/49	1335	3/11/49	1058
12/10/49	1435	12/11/49	1515
9/10/49	1640	22/11/49	2324
10/10/49	1640	3/12/49	0858
12/10/49	1540	5/12/49	1514
12/10/49	1405		

5. The limitations of the particular frequency band are fully understood and it is realised that the dates and times listed above may not coincide with the periods when the band is useable because of ionospheric conditions, but any information forthcoming will be greatly appreciated.

6. As the elimination of the interference is important from the point of view of safety to aircraft, an early return of any relevant information would be very helpful and greatly appreciated.

—W. L. MILNE,
for Director-Gen. of Civil Aviation.

PIRATE! PLEASE NOTE!

Railway St., North Wollongong, N.S.W.

Editor "A.R.", Sir,

I would be pleased if through the correspondence column of "Amateur Radio," you could inform the "gentleman" who is using my call sign on 40 metre phone if he cares to send me a stamped addressed envelope he can have the QSL cards I have for him.

—K. BRADY, VK3AFF.

HAMADS

9d. per line, minimum 2/-.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received by the 15th of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words a line.

FOR SALE.—Type A Mark III. Transceiver, handbook, key, vibrator unit, 7 new spare valves, £12/10/-, L. Hearn, 80 Munro Street, Coburg, Victoria.

FOR SALE.—Tower 40 ft., const. of latticed tubular steel; collapses to 10 ft. sections. Complete with two sets of guys and insulators, base plate and base insulator. Also 10 Mx. three element beam and rotating gear. L. Wade, 6 Edgar Street, Auburn, N.S.W.

NATIONAL H.R.O. Rcv. 30 meg-200 Kc., pwr. supply and spk. also National, new condition, reasonable offer. 35 Reading Road, Brighton, N.S.W.

EXCHANGE.—"Velco" CR50 Oscilloscope for Kodak Precision Enlarger or speed graphic camera. Will also exchange radio gear for photo apparatus. J. W. Nairn, 22 McLean St., Morwell, Victoria.

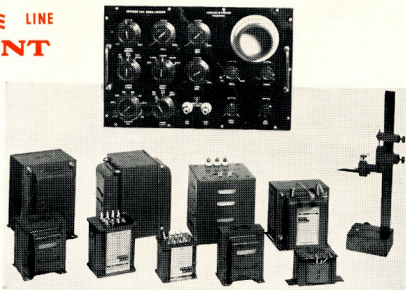
WANTED TO BUY.—AR7 Receiver in good order, either with or without power supply and speaker. Apply G. Laver, Fish Creek, Vic., Phone 100U.

WANTED TO BUY.—English valves type VT501s and AW3s voltage stabilisers, will pay £1 each. J. Clay, Beach House, Point Lonsdale, Vic.

RED LINE EQUIPMENT

Matched Transformer KITS

for all classes of
Electronic
Equipment



RED LINE Specialise in Audio Frequency Transformers up to Frequency Modulation Standards; Power Transformers up to 2 KW. rating. But—see RED LINE for Transformers of ANY specification, whether for Industrial Applications, Electronic Controls, Broadcasting, Amateur Transmitting or Public Address Systems.

Professional Equipment for the Amateur—

We are Specialists in the design and manufacture of Communication Equipment, Industrial Transformers and Chokes, and Fluorescent Lighting Auxiliary Equipment. Unlike most manufacturers in this field, we operate our own tool room, press shop and laboratory and this close integration of our internal organisation is of particular value to manufacturers using our products.

A GUARANTEE



OF

DEPENDABILITY

Precision in Design
and Construction

- Multi Impedance Modulation Transformers.
- Class B Driver Transformers.
- Swinging and Smoothing Chokes.
- Wide Range Audio Equipment.
- Frequency Dividing Networks.
- Power Transformers.
- High Tension Plate Transformers.
- Low Tension Filament Supplies*
- Heavy Duty Power Supplies.
- Output Transformers.

*Insulated for High Voltage if required.

RED LINE EQUIPMENT Pty. Ltd.

CITY OFFICE: MU 6895 (3 lines), 157 Elizabeth St., Melbourne
WORKSHOP: Central 4773, 2 Coates Lane, Melbourne.

VICTORIAN DISTRIBUTORS:

Howard Radio Ltd.
A. G. Healing Ltd.

Healings Pty. Ltd.
Motor Spares Ltd.

Warburton Franki Ltd.
Lawrence & Hanson Ltd.

INTERSTATE DISTRIBUTORS:

Denradio Industries
(Maryborough).
J. Michelmores & Co.
(Mackay).

SOUTH AUST.:
Gerard & Goodman Ltd.
Newton McLaren Ltd.
Unbehauen & Johnstone Ltd.

Radio Wholesalers,
TASMANIA:
Lawrence & Hanson Ltd.
Noyes Bros. (Aust.) Ltd.

VEALL'S Electrical & Radio
Pty. Ltd.
Arthur J. Veall Pty. Ltd.

Homecrafts Pty. Ltd.
Radio Parts Pty. Ltd.

NEW SOUTH WALES:
U.R.D. Pty. Ltd.
Homecrafts Ltd.

QUEENSLAND:
B. Martin Pty. Ltd.
A. E. Harrold.

1 AEGIS 2-STAGE D/W COIL ASSEMBLY featuring Permeability iron-cored B/C and SW coils.

2 AEGIS BROADCAST COILS cover the full range of standard types, plus special windings as required.

3 AEGIS INTERMEDIATES — range of 26 types including the new 10.7 megs. for Frequency Modulation.

4 AEGIS TUNING AND INSTRUMENT KNOBS all sizes and types including Vernier drive.

Capital "A" is appropriate for Aegis components—for their quality is second to none! Here are some typical examples from the comprehensive Aegis range, each one designed and made to exacting standards from first-grade materials.

5 AEGIS CERAMIC INSULATORS. Full range of stand-off and feed-through types for all needs.

6 AEGIS RESISTOR STRIPS (48 lug, 24 lug and 6 lug (with upright mounting lugs).

7 AEGIS RADIO FREQUENCY CHOKES. Honeycomb wound on special ceramic rods —4 pye, 1 pye and 4 pye tapered.

8 AEGIS TUNING POINTER in black bakelite with metal insert. Knobs for all occasions.

9 AEGIS INDICATOR PLATE — bright on black background, calibrated 0-180 K.C. — many other types to choose from.

AEGIS COMPONENTS

AEGIS MANUFACTURING CO. PTY. LTD., 208 LT. LONSDALE ST., MELBOURNE, VIC.

Distributors:

MELBOURNE—
Lawrence & Hanson Electrical Pty. Ltd.
Replacement Parts Pty. Ltd.
Vitality Electrical and Radio Pty. Ltd.
Homcrafts Pty. Ltd.
J. H. McGrath & Co.
John Martin Electrical and Radio Co.

SYDNEY—
John Martin Pty. Ltd.
Geo. Brown & Co. Pty. Ltd.
Fox & Macgillivuddy Ltd.
Australian General Electric Dominion Factors.
Homcrafts Pty. Ltd.
PERTH—
Nicholson's Ltd.
A. J. Wyle.

ADELAIDE—
Geo. Procter (Factory Rep.).
Newton, McLaren Ltd.
A. G. Healing Ltd.
Harris, Scarfe Ltd.
Oliver J. Nilsen & Co. Ltd.
Gerard & Goodman Ltd.
Unbehaun & Johnstone Ltd.

BRISBANE—
Chandlers Pty. Ltd.
B. Martin Pty. Ltd.
A. E. Herold or
Carouch & Connan Pty. Ltd.
TASMANIA—
Lawrence & Hanson Electrical Pty. Ltd. (Hobart).
Lawrence & Hanson Electrical Pty. Ltd. (Launceston).